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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,973	01/22/2004	John K. Sanders JR.	UFOZ-CIP-P4	7880

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EXAMINER

COLLINS, TIMOTHY D

ART UNIT PAPER NUMBER

3643

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,973

Applicant(s)

SANDERS ET AL.

Examiner

Timothy D. Collins

Art Unit

3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3, 5 and 8-20 is/are rejected.
- 7) ☒ Claim(s) 4, 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/1/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/26/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. This application repeats a substantial portion of prior Application No. 10/666936, filed 1/7/02, and adds and claims additional disclosure not presented in the prior application. Since this application names an inventor or inventors named in the prior application, it may constitute a continuation-in-part of the prior application. Should applicant desire to obtain the benefit of the filing date of the prior application, attention is directed to 35 U.S.C. 120 and 37 CFR 1.78.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3,8,9,19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5653404 to Ploshkin (hereinafter called 404) in view of USPN 3997131 to Kling (hereinafter called 131).

a. Re claim 1 and 19, 404 discloses a VTOL aircraft with main body (2) for flight oriented in a substantially horizontal plane because it is a disk shaped device that travels horizontally. Also 404 discloses at least one air impeller engine (as seen in column 8 at lines 19-32 where it is stated that the device may use a magnetic linear induction motor drive) mounted in

Art Unit: 3643

the body. The impeller rotor being oriented along the vertical axis and the rotor mounted in an air channel duct as seen in the figure 4 at least where it is seen that the rotor is surrounded by a channel for the air to move from top to bottom. Also the rotor being formed of blades as seen in figure 5 at number 5. The inner ends fixed to a central hub (about 58) and the outer ends being fixed to outer annular disk (about 59), all rotatable about a vertical axis to provide vertical lift to the craft. The magnetic drive also formed of an array of magnetic induction elements (as seen in the column 8 where it is stated that the rim serves to house the stator windings of the linear induction drive), the elements arrange circumferentially on the disk of the rotor and another array of elements on the wall of the air channel duct or shroud across a small air gap as seen in column 8 at lines 3-6 at least. 404 however does not state that the rotor has a magnetic bearing system for suspending the impeller rotor friction free within the duct, but 131 does teach of this. 131 teaches of a magnetic bearing in a magnetic drive rotor system as seen in column 9 at lines 39-52 at least. 131 teaches of using a magnetic bearing set for the purpose of contact free frictionless suspension with reduced frictional torques as seen in lines 42-43 of column 9. Therefore it would have been obvious to one of ordinary skill in the art to have applied the teachings of 131 into the device of 404 so as to allow for using a magnetic bearing set for the purpose of contact free frictionless suspension with reduced frictional torques as seen in lines 42-43 of column 9 of 131.

Art Unit: 3643

b. Re claims 2,3 and 20, 404 discloses the use of vanes for directing a part of the airflow from the engine in a desired direction to generate a horizontal thrust for translation of the aircraft as seen in column 7 at lines 4-25. The vanes being referred to as the horizontal flight vanes 39 and the turning vanes 47. The vanes corresponding to the x and y axes with actuator means for rotating each at a selected deflection angle as seen in control rods for the vanes.

c. Re claim 8, 404 discloses that the craft has dual coaxial contra-rotating rotors, as seen in the figures. However it does not disclose that the rotors are arranged one on top of the other, but 131 does teach of this in column 6. Therefore it would have been obvious to one of ordinary skill in the art to have applied the teachings of 131 into the device of 404 so as to allow for the device to save space and maintain a smaller footprint upon landing.

d. Re claim 9, 404 as modified discloses that the craft has a single air impeller engine arranged on a central vertical axis of the craft as seen in the figures. This statement is taken as the applicant claiming that the craft with its magnetic drive system on its rotors has an "engine" comprising the rotors and the linear actuators which are surrounding and embedded in the rotor. Therefore as seen in column 8 at lines 19-31, the "impeller engine" is located on the central vertical axis.

Art Unit: 3643

4. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over 404 in view of 131 as applied to claims 1-3,8,9,19 and 20 above, and further in view of USPN 6464166 to Yoeli (hereinafter called 166).

e. Re claims 10 and 13, 404 as modified does not disclose that there are 2 engines that are arranged at opposite ends of the main body balanced about the CG however 166 does teach of this at least in the figures and in the background of the invention, in that the numbers 4 and 5 are seen as being at the front and rear of the craft and it is disclosed that VTOL craft must be balanced about the CG. Also, note that 2 engines are "multiple engines" and that they are arranged symmetrically on the main body.

5. Claims 11,12 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over 404 in view of 131 as applied to claims 1-3,8,9,19 and 20 above, and further in view of USPN 5454531 to Melkuti (hereinafter called 531).

f. Re claim 11, 404 as modified does not disclose that the craft has 3 engines in a triangular configuration balanced about the CG however 531 teaches of 3 engines at least in figure 1. Also it is old and well known in the art to balance the engines about the CG in the VTOL art for the purposes of stability as seen at least by 166 in the rejections of claims 10 and 13. Therefore it would have obvious to one of ordinary skill in the art to have applied the teachings of 531 and 166 into the device of 404 as modified above so as to allow for greater speed and control through the use of 3 engines in the triangular configuration and also for stability. Note

Art Unit: 3643

from this combination you have an aircraft with an exterior of 531 and engines which are magnetic drive, essentially just replacing the 531 engines with engines of 404 as modified by 131.

g. Re claim 12, 404 as modified above discloses that one engine is at the forward apex of a triangle and others are spaced apart on overhead wings, as seen at least in the figure numbers 2 and 3. Note the rear engines are overhead because there is a seat at the front that is lower than the wing.

h. Re claim 14, 404 as modified above discloses that the craft has a pair of winglets on the sides of it for controlling stability as seen in figure 1 and 2. The winglets are on the tips of the wings (28 and 26) and they are the swept up and back pointed "winglets" as is the term of the art.

i. Re claim 15, 404 as modified above discloses that the craft has rudders AND flaps as seen in figure 1 at numbers 40 and 38 (rudders) as well as numbers 36 and 34 (flaps) and they are used for controlling stability.

j. Re claim 16, 404 as modified above discloses that the craft has wings 26 and 28.

k. Re claim 17, 404 as modified does not disclose that the craft is powered by batteries, however the examiner takes official notice that it is old and well known in the art to use batteries to power electrically driven craft so as to release less pollutants at the transportation source.

Therefore it would have been obvious to one of ordinary skill in the art to

Art Unit: 3643

have used batteries to power the electrically drive craft with magnetic drive system for the purpose of reducing pollutants output by the craft.

l. Re claim 18, 404 as modified does not disclose that the craft is powered by fuel cells, however the examiner takes official notice that it is old and well known in the art to use fuel cells to power electrically driven craft so as to release less pollutants at the transportation source.

Therefore it would have been obvious to one of ordinary skill in the art to have used batteries to power the electrically drive craft with magnetic drive system for the purpose of reducing pollutants output by the craft.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over 404 in view of 131 as applied to claims 1-3,8,9,19 and 20 above, and further in view of The Gimbal Fan by Dr. Bertelsen as seen in http://www.aeromobile.com/aeromobile_vers2/Gimbal_Fan/gimbal_fan.htm, and also in the Videos on the page: http://www.aeromobile.com/aeromobile_vers2/Videos/video_gimbalfan/video_gimbalfan.htm (Videos) (all collectively referred to as GF).

m. Re claim 5, 404 as modified does not disclose that the craft has tiltable engines with inner and outer swivel rings, however GF does teach of this. GF teaches of a fan with inner swivel ring and outer swivel ring attached to a vehicle wherein the inner and outer rings are mounted opposite one another and the fan is capable of tilting inside the "gimbaled" mounts for control of thrust. See the picture on the right of page 1. It can be seen that the fan is housed in a ring (inner ring, that is solidly mounted

Art Unit: 3643

to the fan), and outside of this is a thin metal ring (outer ring, which the inner ring is pivotably mounted to). As seen in the video this device is then mounted to a vehicle and the entire device allows for the thrust to be directed in any direction. Note: it is difficult to tell the details from the pictures on the printout, however it is clearly seen in the video.

Allowable Subject Matter

7. Claims 4,6 and 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record all failed to show neither alone and/or in combination the rotatable support ring, and the hollow annular disk with pitch changing devices inside.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art discloses VTOL craft.

n. USPN 5303879

o. USPN 6113029

p. USPN 5351911

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy D. Collins whose telephone number

Art Unit: 3643

is 571-272-6886. The examiner can normally be reached on M-F, 7:00-3:00, with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 571-272-6891. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Timothy D. Collins
Patent Examiner
Art Unit 3643